Important Advances in Clinical Medicine

Epitomes of Progress—Radiology

The Scientific Board of the California Medical Association presents the following inventory of items of progress in Radiology. Each item, in the judgment of a panel of knowledgeable physicians, has recently become reasonably firmly established, both as to scientific fact and important clinical significance. The items are presented in simple epitome and an authoritative reference, both to the item itself and to the subject as a whole, is generally given for those who may be unfamiliar with a particular item. The purpose is to assist the busy practitioner, student, research worker or scholar to stay abreast of these items of progress in Radiology which have recently achieved a substantial degree of authoritative acceptance, whether in his own field of special interest or another.

The items of progress listed below were selected by the Advisory Panel to the Section on Radiology of the California Medical Association and the summaries were prepared under its direction.

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The Present Status of Retrograde Cholangio-Pancreatography

RETROGRADE CHOLANGIO-PANCREATOGRAPHY is a valuable new diagnostic technique for the radiographic diagnosis of diseases of the biliary tree and pancreas. With the development of the side-viewing fiberoptic duodenoscope, it is possible to cannulate the ampulla of Vater under direct vision through the endoscope and to inject radiographic contrast material retrograde into the pancreatic duct or the common bile duct. In this way radiographs showing the pancreatic ducts and its branches can be made, whereas before such pancreatograms were possible only intra-operatively. Tortuosity, stricture, dilitation, obstruction and calculi in the main duct or its branches are findings in chronic pancreatitis, while carcinoma of the pancreas may cause displacement, narrowing or obstruction of the duct. Cannulation of the common bile duct permits opacification of the biliary tree in the presence of impaired liver function and biliary tract obstruction. Gallstones, tumors and strictures of the common duct can be diagnosed when duct obstruction renders radiographic visualization by intravenous cholangiography impossible, and without the risk of bile peritonitis or hemorrhage associated with transhepatic cholangiography.

The technique is currently in a phase of enthusiastic evaluation, typical of all new diagnostic modalities, in which the indications, complications and diagnostic value are being defined. The difficulty of the cannulation should not be underestimated. Despite the fact that several endoscopists report a high success rate, most series indicate that failures are numerous until expertness is obtained. The cost of the examination is extremely high, as it takes from thirty minutes to two hours of both an endoscopist's and a radiologist's time, it occu-

pies a fluoroscopy room for the same period, and it requires an investment in a side-viewing endoscope that has little other use. The appropriate instrument with accessories costs as much as $10,000. So far, the risk to the patient appears to be minimal. A few patients have mild abdominal pain and fever after the examination. Elevation of the serum amylase, sometimes to high levels, is noted regularly. The first case of fatal necrotizing pancreatitis following the procedure was reported recently. Infection of pancreatic pseudocysts may occur.

Answers are being sought to the questions of how many endoscopists should take the time to acquire the expertise necessary to perform the cannulation, which and how many patients should have the study, and what the significance of the radiographic findings is. Finally, it must be determined if the results sufficiently alter therapy and diminish morbidity and mortality to justify the cost and risk to the patient and the expenditure of the physician's time.

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Osteomyelitis in Drug Addicts

HEMATOGENOUS OSTEOMYELITIS, predominantly spondylitis, is an increasingly frequent complication of intravenous drug abuse. The bacteria causing these infections are unusual, consisting largely of Pseudomonas aeruginosa or Klebsiella aerobacter. Because of the destructive nature of these pyogenic infections, it is essential to establish the diagnosis immediately and to determine the causative organism in order to institute appropriate therapy.

Any patient with a history of intravenous drug abuse with localized skeletal pain should be suspected of having osteomyelitis, although early radiographs are often normal. Frequently, radioactive isotope bone scans which reflect increased osteoblastic activity will be positive before bone destruction can be detected on routine radiographs. Needle aspiration or bone biopsy will often yield the specific organism for sensitivity studies; however, this may require multiple attempts.

Between 1969 and 1971, 32 cases of skeletal infection in drug abuse patients were diagnosed at Los Angeles County-University of Southern California Medical Center. Sixty-six percent of the cases involved the spine or sacroiliac joint and 18 percent involved the area around the wrist or sternoclavicular joint. The radiographic findings in these areas were indistinguishable from tuberculosis, and, in fact, this form of osteomyelitis was seen ten times more frequently than tuberculosis.

Delays (averaging two months) in diagnosis and treatment occurred for the following reasons: (1) Lack of awareness of the association of intravenous drug abuse and osteomyelitis; (2) dismissal of patients as normal when radiographs were normal, without requesting bone scans; (3) positive radiographs frequently attributed to tuberculosis; (4) treatment of patients with Gram positive or broad spectrum antibiotics without bacteriological confirmation.

Successful therapy was accomplished when specific antibiotic therapy utilizing gentamicin or a combination of gentamicin and carbenicillin was instituted.

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Echocardiography and the Radiologist

OFTEN THE RADIOLOGIST is consulted by the clinician as to the cause of cardiomegaly initially diagnosed on radiographic examination of the chest. In many instances the history is of no help, there are no previous films for comparison, the electrocardiogram findings are equivocal and the patient's illness so acute that treatment must be begun promptly.

The armamentarium of the radiologist, until recently, included two types of examination: radioisotope studies and CO_2 infusion into the right atrium. These were mainly designed to exclude